

Turkish Metalinguistic Awareness Scale: A Validity and Reliability Study

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Abstract The aim of this study is to develop a useful, valid and reliable measurement tool that will help teacher candidates determine their Turkish metalinguistic awareness. During the development of the scale, a pool of items was created by scanning the relevant literature and examining other awareness scales. The materials prepared were re-examined according to the opinions of two lecturers working in the field of Turkish language education and two working in educational science and a draft scale was prepared. The items in the draft scale were evaluated by pre-application, items with a weak measurement relation were removed from the scale and the scale was prepared for factor analysis. The scale, designed as a 5-point Likert type scale, was applied to a total of 480 students. The α value of the scale formulated by factor analysis (Principal Component Analysis) was found to be 0.87. As a result of the analyses made, it was determined that the scale had 6 sub-factors and factor loadings ranging from 0.499 to 0.841 were found in these factors. These findings show that the scale can be used to determine Turkish metalinguistic awareness and is a valid and reliable measurement tool.

Keywords Turkish, Language Awareness, Metalinguistic Awareness, Improving Scale

1. Introduction

A nation can maintain its existence by developing a national consciousness and a common language. Language is an important structure which is commonly referred to by the adjective derived from the nation's name and which carries within it all the elements that make up a sense of national identity, enabling the nation to take up a permanent place in history. The elements of national culture are transmitted to and by individuals through language. The nation and the culture to which individuals feel themselves to belong are embodied in language. Furthermore, the ways in which societies think and express themselves also develop and are communicated through

language. From this perspective, language can be thought of as one of the deepest bonds connecting one individual to another and to their shared culture. As Aksan [5] points out, language is the element that most strongly reflects the unconscious culture that underpins the relation of people to society.

A nation's conscious development of a common language is also directly related to how that language is used. Using a language is a broad process involving actions practiced by all speakers of the language as much as the individual. As shared patterns of communication and interaction develop through the use of a language, a common language and cultural heritage emerge. Maintaining this heritage also helps to preserve the bond between the past and the future and increases individuals' respect for and loyalty towards their own languages and cultures. The conscious use of a language is the clearest indication of this respect and loyalty.

Language consciousness, language motivation, language awareness and language attitude are important factors affecting language preference and language usage. In this framework, language awareness can be defined as the specific knowledge that an individual has about the language they speak. It can also be described as individual's consciousness and sensitivity towards language teaching, language learning and language usage and as the conscious attention paid to the relationship between culture and language [24]. The fact that an individual is intricately involved with language and culture in a social context enables them to acquire use of language as a natural process. As a result of making language and culture a part of their own lives, all the psychological behaviours, feelings and thoughts individuals develop with regard to language help determine the kinds of language they prefer to use. In this respect, language awareness is also one of the cognitive factors affecting language usage.

Language awareness is an important element that contributes to linguistic unity and promotes consensus and understanding between individuals speaking the same language. If the individual has an awareness of the language they are using, a sense of ownership of the language and sensitivity in using it develops. Language

awareness consists of the totality of language sensitivity, consciousness and perception. It is general cognition about language. In this respect, language should be assessed as it is, and in its entirety, without being judged, rejected or suppressed.

Metalinguistic awareness means that the individual thinks about the language they are speaking and consciously uses the different structural features that a language provides [18]. It is the totality of the meanings, thoughts, knowledge, and physical aspects that the individual speaks about. It is also a general concept related to many skills that involve basic awareness of language units such as sounds, words, sentences and meaning. When the literature on metalinguistic awareness is examined, it is seen that various sub-topics related to awareness of language sub-dimensions have been investigated, including phonological awareness, morphological awareness, syntactic awareness and semantic awareness. Phonological awareness is the awareness of the relationship between the letters in the alphabet and their vocalization in speech. It approaches words by dividing them into smaller units such as voice, syllable, and rhyme [74]. The type of language awareness most studied in literature is phonological awareness. Morphological awareness is based on having the necessary knowledge about the structure of the words used in the spoken language, for example, distinguishing the roots, prefixes and suffixes of words, declining nouns, and knowing, understanding and being able to use verbs in all their conjugations [47]. The type of awareness that knows how to deploy the structural, functional, and semantic properties of all the elements that make up the sentence is syntactic awareness [18]. Knowing about, comprehending and using rhetorical devices, as well as understanding the content of words and forms such as idioms, phrases and proverbs, is semantic awareness [63]. Beyond these topics, other studies in the literature generally focus on issues such as language awareness, metalinguistic awareness, critical language awareness, cultural awareness and teacher language awareness.

Some of these studies, which reveal the literature in general, are listed below:

Metalinguistic awareness: [60], [68], [45], [40], [19], [26], [12], [44], [2], [77], [62], [7], [43].

Language awareness: [73], [20], [13], [22], [25], [29], [57], [21], [59], [72], [54].

Critical language awareness: [27], [9], [8], [42].

Teacher language awareness: [14], [41], [15], [52].

Phonological awareness: [3], [39], [30], [70], [4], [32], [33], [50], [69], [31], [74], [71], [17], [37], [38], [49], [16], [36], [35], [34], [48], [56], [2], [10], [28], [58], [6], [1].

Morphological awareness: [53], [75].

Syntactic awareness: [63], [11].

Semantic awareness: [76].

Cultural awareness: [55], [67], [64], [24].

1.1. Importance and Purpose of the Study

When language awareness is examined in the context of literature, it is seen that issues regarding awareness tend to be handled individually and are mostly focused on certain types of awareness, while other topics are less researched and the sample groups studied mainly consist of children. In all these studies, no specific research has been carried out regarding measurement and evaluation tools for Turkish metalinguistic awareness and the measurement instruments used in the research tend to lag behind the subjects studied.

This study is therefore needed to fill the gap in this area of research, to inspire other researchers to conduct similar research, and to develop a valid, reliable and useful scale for measuring Turkish metalinguistic awareness.

The specific aim of this study was to develop a useful, valid and reliable scale that will help determine the metalinguistic awareness of Turkish teacher candidates.

2. Method

2.1. Study Model

The research model used in this study is the screening model. It was used in order to provide a suitable model for large sample group surveys [51]. It is a widely used research model and since this is a scale development study based on determining awareness it was suitable for the research.

2.2. Participants

In this study, data were collected from 480 teacher candidates studying at Gaziantep University, selected by the easily accessible sampling technique (N=78 for the preliminary application and N=402 for the application). All individuals participated on a voluntary basis.

The descriptive characteristics of the participants are summarized in Table 1:

Table 1. The Characteristics of the Participants

Characteristics		N
Gender	Female	306
	Male	174
Department	Turkish Language Education	218
	Turkish Language and Literature Education	103
	Classroom Instruction	97
	Social Sciences Education	34
	Mathematics Education	28
Age	20 Ages and Under 20 Years of Age	189
	21-23 Ages	173
	24 Ages and Over 24	118
Total		480

Tavşancıl [65], who gave recommendations about sample size and how many people should participate, states that the number of participants should be at least 5 times

higher than the number of items to be analysed with a factor of not less than 100 persons. In this regard, it can be said that the number of participants contributing to the research was sufficient.

2.3. Study Process

The process of the study consisted of the following stages: literature survey, item pool creation, validity of scope, pilot study and selection of materials, main implementation for factor analysis, structure validity, reliability calculation, factor analysis, naming and reporting of factor sub-dimensions.

The literature review examined scales developed in the field of language teaching and research on awareness, language consciousness, language use, language awareness, teacher language awareness and pragmatics. Teacher candidates were asked various questions in order to determine the level of their awareness about the topic, and the answers received were found to be inadequate, inconsistent or incomplete. There are many studies on the subject worldwide. In the Turkish literature, however, besides there being only a limited number of studies, it was seen that language awareness is mostly handled in terms of phonetics, morphology, syntax and semantics. It was also observed that studies related to reading and writing language skills are included within this field. It could thus be argued that a comprehensive scale should be developed which includes not only the development of Turkish metalinguistic awareness but also the communicative and cultural dimensions of language.

Based on the studies examined, 15 items were determined for each of the themes of phonological awareness, morphological awareness, syntactic awareness, semantic awareness, communicative awareness and cultural awareness, making a total of 90 items. After the items were identified, they were presented to four experts, two of whom were working in the field of Turkish language education and two in the field of educational science. Items changed following feedback from the experts were rewritten in a form suitable for the 5-point Likert type scale, which would be bi-directional (positive-negative).

The validity of the scope was examined in order to check whether the items in the draft scale to be used in the study were adequate in terms of quantity and quality. Expert opinions were received to determine the validity of scope [23]. Expert opinions were also consulted to determine the intelligibility of the items and whether the characteristics to be measured were reflected in the items in the scale. Some items were corrected according to the feedback from the experts, some were removed from the scale (n=26) and the final form was then given to the draft scale. After this reorganization, there were 64 items on the draft scale. The scale was pre-applied to 78 students to determine whether

the 64 items on the draft scale were appropriate for the sample group and whether they represented the behaviours intended to be measured. According to the data obtained from this process, the Cronbach's alpha (α) value of the draft scale was calculated as 0.79. After this stage the scale was applied to a sample group of 402 students.

Factor analysis (basic components) was performed to determine the structure validity of the scale. Factor analysis is used for cases in which items in similar categories can be grouped according to similar structures and qualities [46]. Kaiser Meyer Olkin (KMO) and Bartlett's tests, cofactor variance values, eigenvalue, principal component analysis and the varimax rotation technique were used in order to demonstrate the validity of the structure. The reliability of the scale was examined by calculating the Cronbach's Alpha (α) reliability coefficient and item total correlation. The α value is a measure of the internal consistency of the scale and values above 0.70 are considered sufficient for reliability. The item total correlation value is used to explain the correlation between the item score and the total score of the test. The positive values for the item total correlation and its high score indicated that the scale had internal consistency [23].

3. Findings

3.1. Validity of the Structure

In order to determine whether the data used in the factor analysis were obtained from a suitable sample group, the KMO test was performed. The Bartlett test was also performed to show whether the correlation between the factors in the test was adequate [66]. The significance rate of the Bartlett test and a KMO value that is larger than 0.50 are considered to be necessary for the suitability of the sample. The KMO rates are evaluated as follows: 0.60 is moderate; 0.70 is good; 0.80 is very good; 0.90 is excellent [61]. The Bartlett test result and the KMO value of this study are presented in Table 2:

Table 2. The Results of KMO and Bartlett test

KMO and Bartlett Test		
KMO Sufficiency of Sample Measurement		,837
Bartlett Test	χ^2	3,128
	df	820
	p<0,05	,000

According to Table 2, the KMO value was 0.837 and the results of the Bartlett test were found to be significant. These results showed that the sample size was very good and that the scale items were suitable for factor analysis. Finding a p value that is smaller than p<0.05 significance level showed that there was a sufficient correlation between the variables to perform factor analysis.

In order to determine the validity of the structure of the scale, covariance included in the scale were used. The items with a load factor value of 0.45 and above were selected to be included in the process of analysis. According to [23], the value of 0.45 is sufficient at the minimum level. In this study, it was determined that the

load factor values of 64 items in the scale ranged from 0.335 to 0.841. A total of 23 items with a load factor less than 0.500 were removed from the process of analysis and the remaining 41 items were evaluated. The load factor values of the scale consisting of the 41 items remaining are shown in Table 3:

Table 3. The Load Factor Values of the Items of the Scale

Items	Load Factor Values	Items	Load Factor Values	Items	Load Factor Values
1	,841	15	,632	29	,542
2	,837	16	,554	30	,566
3	,815	17	,728	31	,503
4	,717	18	,523	32	,541
5	,712	19	,560	33	,587
6	,675	20	,552	34	,544
7	,681	21	,563	35	,578
8	,796	22	,564	36	,523
9	,549	23	,543	37	,582
10	,673	24	,521	38	,515
11	,500	25	,499	39	,559
12	,538	26	,575	40	,532
13	,547	27	,511	41	,526
14	,575	28	,589		

When the data in Table 3 were examined, the load factor values of 41 items were found to be appropriate. For this reason, analyses were performed to determine the subscales of the scale.

3.2. Factor Analysis

An eigenvalue and a line graph are used to show the number of correlations between the items and to determine the number of factors effectively [23]. The line graph obtained for the 41 items is shown in Figure 1:

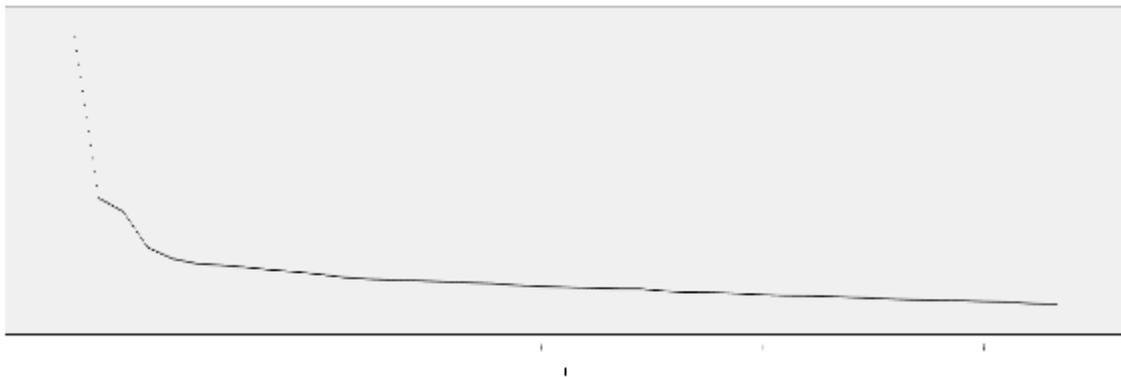


Figure 1. Line Graph Showing the Number of Factor

The line graph obtained by combining the eigenvalues of the items shows the rapid declines that could be seen between the items. The fracture points on the graph were also used to determine the number of factors [23]. In Figure 1, the rapid declines in the line graph start from item 6 and take a horizontal view. According to these values, it can be seen that there were six factors which were more significant and whose eigenvalue was higher than 1:

Table 4. Factor Analyses for Eigenvalue of Items of the Scale

Items	Eigenvalues *			Description of Load Factor Frames		
	Total	Percentage of Variance	Total Percentage	Total	Percentage of Variance	Total Percentage
1	2,522	6,151	29,504	2,522	6,151	29,504
2	1,672	4,077	30,581	1,672	4,077	30,581
3	1,409	3,436	37,017	1,409	3,436	37,017
4	1,289	3,344	47,161	1,289	3,344	47,161
5	1,109	3,336	64,457	1,109	3,336	64,457
6	1,009	3,144	70,162	1,009	3,144	70,162
7	,994	3,053	70,169			
8	,991	2,935	70,212			
9	,986	2,785	70,222			
10	,985	2,678	70,309			
11	,983	2,532	70,413			
12	,964	2,351	70,458			
13	,924	2,254	70,507			
14	,900	2,195	70,511			
15	,888	2,166	70,602			
16	,863	2,105	70,621			
17	,841	2,052	70,812			
18	,821	2,002	70,956			
19	,779	1,899	71,167			
20	,750	1,830	72,997			
21	,731	1,783	74,780			
22	,715	1,744	76,523			
23	,697	1,699	78,222			
24	,694	1,693	79,915			
25	,641	1,564	81,480			
26	,610	1,489	82,968			
27	,604	1,473	84,441			
28	,584	1,424	85,865			
29	,552	1,346	87,212			
30	,534	1,303	88,514			
31	,529	1,290	89,804			
32	,507	1,236	91,040			
33	,486	1,185	92,225			
34	,460	1,121	93,346			
35	,436	1,064	94,410			
36	,425	1,036	95,445			
37	,417	1,018	96,463			
38	,395	,963	97,426			
39	,383	,933	98,359			
40	,343	,837	99,197			
41	,329	,803	100,000			

*Basic Component Analysis

The first factor accounted for 6.151% of the total variance, the second factor accounted for 4.077% of the total variance, the third factor accounted for 3.436% of the total variance, the fourth factor accounted for 4.344% of the total variance, the fifth factor accounted for 3.336% of the total variance and the sixth factor accounted for 3.144% of the total variance.

The cumulative variance for the eigenvalues revealed 70.162% of the total variance. Tavşancıl [65] points out that values between 40% and 60% indicate that the factor structure is strong. In this case, it was seen that the total variance ratio of the scale developed is sufficient.

The correlation values were examined to determine the distribution of the factors of the scale items. The strongest correlation of variables with which factor was determined by varimax analysis. The factor correlation values of the obtained items are presented in Table 5:

Table 5. Factor Correlation Values of the Items in the Scale

Items	Factors					
	1	2	3	4	5	6
4	,624*					
5	,596*					
12	,578*					
11	,551*					
23	,545*					
13	,514*					
24	,507*					
20		,662*				
15		,582*				
3		,569*				
21		,496*				
25		,492*				
31		,487*				
35			,654*			
33			,577*			
19			,504*			
26			,503*			
34			,497*			
17			,474*			
14			,454*			
30				,605*		
28				,597*		
2				,529*		
29				,485*		
27				,457*		
9				,450*		
38					,647*	
1					,585*	
37					,468*	
40					,465*	
39					,457*	
41					,455*	
22					,451*	
32						,687*
7						,602*
18						,573*
36						,548*
16						,532*
10						,501*
6						,481*
8						,469*

*p<0,05

In Table 5, the factors include items as follows: Factor 1 contains items 4, 5, 12, 11, 23, 13 and 24. Factor 2 contains items 20, 15, 3, 21, 25 and 31. Factor 3 contains items 35, 33, 19, 26, 34, 17 and 14. Factor 4 contains items 30, 28, 2, 29, 27 and 9. Factor 5 contains items 38, 1, 37, 40, 39, 41 and 22. Factor 6 contains items 32, 7, 18, 36, 16, 10, 6 and 8. The factors were named as follows: phonological awareness, morphological awareness, semantic awareness, syntactic awareness, communicative awareness and cultural awareness.

3.3. Reliability Analysis

As a result of the reliability analysis for 41 items, the Cronbach’s alpha reliability coefficient was calculated as 0.87.

Table 6. Cronbach Alpha Values of the Scale and Sub Factors

General Cronbach Alpha	Number of items of the scale	Phonological awareness	Morphological awareness	Semantic awareness	Syntactic awareness	Communicative awareness	Cultural awareness
,871	42	,874	,869	,872	,871	,876	,870

According to Büyüköztürk [23], scales that have a lower limit of reliability coefficients than 0.70 are considered sufficient. In this study, the reliability coefficient, which is determined on the scale, also indicated that there was an expected level of reliability. Other findings for reliability analyses are shown in Table 7.

Table 7. Values Related to Reliability Coefficient of the Scale

Items	The average of scale if item deleted	Variance of scale if item deleted	Cronbach Alpha of scale if item deleted
VAR00001	140,1280	499,109	,870
VAR00002	139,9821	488,400	,868
VAR00003	139,7917	486,733	,867
VAR00004	139,9345	487,661	,868
VAR00005	140,0536	484,994	,867
VAR00006	140,0119	489,051	,868
VAR00007	140,3482	487,523	,868
VAR00008	140,2560	488,687	,868
VAR00009	139,5387	493,091	,869
VAR00010	140,2351	491,106	,869
VAR00011	139,8333	487,853	,867
VAR00012	139,8155	491,375	,869
VAR00013	140,1548	491,379	,869
VAR00014	139,8720	490,828	,868
VAR00015	140,6994	488,163	,868
VAR00016	140,2470	491,649	,869
VAR00017	139,7500	491,764	,869
VAR00018	140,6845	488,921	,868
VAR00019	140,1726	495,827	,870
VAR00020	140,2143	490,079	,868
VAR00021	140,1220	488,155	,868
VAR00022	139,9137	488,378	,868
VAR00023	140,3214	491,538	,870
VAR00024	140,1488	496,945	,871
VAR00025	139,8155	491,291	,869
VAR00026	140,2054	490,677	,869
VAR00027	139,9881	491,570	,869
VAR00028	139,6548	492,418	,869
VAR00029	139,6518	493,846	,869
VAR00030	139,5655	492,742	,869
VAR00031	139,7351	496,004	,870
VAR00032	139,3988	494,575	,869
VAR00033	139,6012	492,724	,869
VAR00034	139,8482	494,308	,870
VAR00035	139,9970	488,660	,868
VAR00036	140,0595	488,152	,868
VAR00037	139,7292	490,753	,868
VAR00038	140,0089	488,349	,868
VAR00039	140,3720	490,634	,869
VAR00040	140,0179	485,844	,868
VAR00041	140,0952	481,698	,866

In order to determine the discrimination between the items on the scale, the difference between the items was examined and the ANOVA test was performed. A significant difference was obtained between the items. The findings are presented in Table 8.

Table 8. ANOVA Test

		Frame definition	Sd.	Average Frame	F	Sig.*
Inter group		1454,792	279	4,908		
In-group	Inter items	89,620	40	7,376	8,355	000
	Increasing	2650,245	2783	,871		
	Total	2560,893	2794	,889		
Total		3595,626	3047	1,362		

*p<0,05

The Hotelling t^2 statistic was used to determine the difficulty level of the scale items. The findings are shown in Table 9:

Table 9. Hotelling t^2 Test

Hotelling t^2	F	df1	df2	Sig*
102,529	9,695	40	256	,000

*p<0,05

According to the values in Table 9, the findings regarding the discrimination of the items were found to be significant at a significance level of p<0.05.

4. Result

This study aimed to develop a scale to determine the Turkish metalinguistic awareness in a sample of teacher candidates. According to the results of the validity and reliability analyses, it was determined that the scale developed was appropriate for determining teacher candidates' metalinguistic awareness. The sub-dimensions of this scale, which has a six-dimensional structure, are as follows:

- phonological awareness,
- morphological awareness,
- semantic awareness,
- syntactic awareness,
- communicative awareness,
- cultural awareness

The general conclusion reached in the study was that the scale is a useful, valid and reliable tool for determining the Turkish metalinguistic awareness of teacher candidates.

5. Suggestions

Based on the results of this study, the following suggestions can be made:

1. New measurement tools for each sub-dimension of the scale could be developed.
2. New educational measurement tools could be developed by using research findings from disciplines such as psychology, sociology and linguistics to increase language use, language awareness and language ability.

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